A cosmetic removal implement which comprises an elongate body portion having a contact tip at an end, the body having therein: a storage spool having spooled thereon a tape of cleaning material; a collection spool operationally connected to the storage spool by the tape; and a reservoir containing a cosmetic removal composition, the reservoir being in fluid connection with at least a portion of the tape; and wherein the tape is capable of motion along a tape path from the storage spool over at least a portion of the contact tip to the collection spool.
COSMETIC REMOVING AND CORRECTING IMPLEMENT

FIELD OF THE INVENTION

[0001] The present invention is directed to a device for the removal or correction of cosmetics, in particular cosmetics used on or around the eye, such as eye shadow, eye liner and mascara. It can also be used to remove cosmetics applied to the face or elsewhere.

BACKGROUND OF THE INVENTION

[0002] Mascara is a cosmetic used to darken, thicken and define eyelashes. It is applied to the eye lashes. Eye liner is a cosmetic used to define the eyes. It is applied around the eye, typically on the rim of the eye. Eye shadow is a cosmetic typically used to emphasize the eye, to add depth and dimension. It is applied on the eyefolds and under the eyebrows.

[0003] The application methods can vary depending on the cosmetic. Eye shadow can be applied as a powder or in the form of a liquid or pencil. Modern mascaras are typically applied using a wand applicator, effectively a protective tube having therein a brush.

[0004] A person who applies makeup often wishes to remove any makeup present, leaving the skin clean, before applying makeup again, or wishes to remove makeup from very particular spots in order to touch-up the makeup. This removal is often problematic from sensitive areas such as the area of the eyes since it requires precision handling. Typically, one common practice for removal of makeup is to wet a cotton bud, and then to apply the wet swab to the area or the spot from which the makeup is intended to be removed. Several buds can be required because of the transfer of makeup from the dirty bud back onto the face. Furthermore, a makeup remover composition is not always at hand when needed, or may be messy to use, or may not be effective, thus the user may resort to the use of other less appropriate liquids or methods to remove the makeup.

[0005] Mascara and eyeliner can be particularly difficult to remove; those which are water resistant (waterproof mascaras and eyeliners) provide excellent resistance to tears and perspiration but the same property makes it difficult to remove when washing with water. Such mascaras and eyeliners require the use of specialised makeup removers.

[0006] Non water resistant mascaras and eyeliners exist and can be readily removed with soap and water, but are highly prone to smearing and running. Although such eye makeup can be readily removed, it is not normally done with a high degree of precision. If cotton buds are used, it can be necessary to have a number of buds at hand, to manage the removal and tidy up the makeup. Instead of removing the smears it can be necessary to remove it all and start again. In those circumstances, it may be necessary to reapply eye shadow, eye liner as well as the mascara.

[0007] Many makeup removal compositions are presently available, the majority of them are in liquid form, and some are creams and gels. The compositions intended for removing eye makeup are required to be non-irritant to the skin and to the eye. Makeup removal compositions may be supplied in the form of a pad pre-soaked with a removal composition. The common practice for removing eye makeup, for example, is to dab the pad over a closed eye, thus removing all the makeup at once. This can be inconvenient, particularly, when travelling, or for simple use during the day, since it requires carrying bulky articles in handbags and the like.

[0008] It would be advantageous to provide a device for the removal of cosmetics, including waterproof mascara, eye-liner and other cosmetics which require specialised compositions to remove the cosmetic.

[0009] It would be advantageous to provide a device which permits the removal of some makeup with a high degree of precision and thereby enable a user to touchup their makeup.

[0010] It would be advantageous if the device was small enough to permit its carriage in a handbag or pocket by the user, but also permit the user to remove a significant amount of makeup before it ceases to function.

SUMMARY OF THE INVENTION

[0011] In an embodiment of the invention there is provided a cosmetic removal implement which comprises an elongate body portion having a contact tip at an end, the body having therein:

[0012] i. a storage spool having spooled thereon a tape of cleaning material;

[0013] ii. a collection spool operationally connected to the storage spool by the tape;

[0014] iii. a reservoir containing a cosmetic removal composition, the reservoir being in fluid connection with at least a portion of the tape;

[0015] and wherein the tape is capable of motion along a tape path from the storage spool over at least a portion of the contact tip to the collection spool.

[0016] Preferably the implement includes an actuator which when operated results in the rotation of the collection spool and collection of the tape about that spool. As the collection spool is rotated it drags the tape of the spool and thereby drags the tape along the tape path and from the storage spool and thereby delivers a new tape section over the contact tip.

[0017] Preferably the implement includes a delivery system for delivering makeup removal composition from the reservoir to a portion of the tape. The composition should be delivered to a portion of tape before or as that portion of tape is moved into position over the contact tip. Alternatively, the composition is delivered to the portion of tape located at the contact point, as or after the tape is moved into position over the contact point.

[0018] The tape of cleaning material may be formed from an absorbent material. It may be based on wool or non-woven fabrics and could include natural and/or synthetic fibres. Natural fibres are derived from plants, animals, insects or by products of plants, animals, and insects. The conventional base starting material is usually a fibrous web comprising any of the common natural or man-made fibres, or combinations thereof.

[0019] Non limiting examples of natural fibres useful in the present invention include silk fibres, keratin fibres and cellulose fibres. Non limiting examples of keratin fibres include wool fibres and the like. Non limiting examples of cellulose fibres include those selected from wood pulp fibres, cotton fibres, hemp fibres, jute fibres, flax fibres, and combinations thereof. Cotton fibres are the preferred natural fibres for use as the tape material.

[0020] Non limiting examples of man made fibres useful in the present invention include acetate fibres, acrylic fibres, cellulose ester fibres such as cellulose acetate, modacrylic fibres, polyamide fibres such as nylons, polyester fibres, poly-
olefin such as polypropylene, polyethylene fibres, polyvinyl alcohol fibres, rayon fibres, polyethylene terephthalate fibres and others. Woven polyester fibres are the preferred man made fibres for use as the tape material.

[0021] The tape can be a blend of different types of fibres including, for example, a cotton/polyester blend.

[0022] The tape may comprise two or more layers of materials, an outer contact surface of fibres or foam materials on a lower support layer or structured around a supporting internal core. The fibres can be natural or man-made fibres as described above. If foams are used then the foams could be selected from polyethylene foams, polystyrene foams, vinyl foams, acrylic foams, polyether foams, polyester foams, polyurethane foams, blends of miscible and immiscible polymers and copolymers, silicone sponge foam, neoprene foams, rubber foams, polyolefin foams and mixtures thereof.

[0023] If the tape comprises two or more layers then the lower layer (the layer further away from the contact surface of the tape) or internal core may be used to provide structural strength and does not need to be absorbent. The lower layer may comprise multiple layers and formed from a web or webs.

[0024] In an arrangement any lower layer is porous in order to permit the transfer of the removal composition through the lower layer to the upper contact layer. If an internal core is used then the core need not be porous, so long as the composition can travel around the core.

[0025] In an embodiment the tape may comprise an upper absorbent cotton fibre on lower polymer support layer.

[0026] It is preferred to use absorbent cotton or polyester fibres for the tape.

[0027] The cosmetic removal composition is preferably in the form of liquid, emulsion or gel composition for ease of delivery to the tape. A range of makeup removal compositions may be used. For waterproof mascara the composition can be proprietary formulations or non proprietary oil based compositions. Such liquid oil based compositions can contain liquid paraffin, mineral oils or silicon oils. An example proprietary formulation are the Cetaphil range of cleanser compositions. Emulsion compositions, commonly known as milks or lotions can also be used.

[0028] An example removal composition contains water as a vehicle, poloxamer 184, Ceteth-20 and Laureth-23 as emulsifying agents, butylene glycol as humectant, PEG-20 Glyceryl laurate as solubiliser, Panthenol as moisturiser, sodium phosphate and disodium phosphate as buffering agents, calcium disodium EDTA as chelating agent, chlorhexidine digluconate and sodium methylparaben as preservatives and citric acid as a pH adjuster.

[0029] The elongate body may be made from any being adapted to be held by the hand of a user and enable the manipulation of the device. The implement may be cylindrical in shape and held like a pen or wand. The body may be formed from any suitably rigid and durable material. It is expected the outer body would be rigid and low cost plastic, such as polyethylene or polypropylene, HIPS, ABS or similar. Also it could be formed from aluminium for a higher value presentation.

[0030] The contact tip contacts and supports the tape portion thereon. The tip can contact the skin of the user. Any skin contacting portion of the contact tip may be formed from a non-abrasive, skin friendly material for the comfort of the user as it is dragged about the face. The tip may have an inner core to provide resilience as the contact tip is dragged against the skin.

[0031] In the preferred arrangement the tape covering the tip would prevent the contact tip from coming into contact with the skin of the user in normal use. The tip may comprise a relatively rigid resilient material capable of holding its shape when pressed against the skin of the user. The tip may be formed from a hard plastic. The use of soft plastics or absorbent materials is not preferred for it can readily discolour and transfer the colour in subsequent uses.

[0032] If the tip is formed from a non porous hard plastic, it may be perforated to permit the composition to flow from within the tip to the outer surface of the tip. The tip could include slot whereby the tape passes into and out of a portion of the tip before passing around the top of the tip.

[0033] The reservoir of cosmetic removal composition is in fluid connection with the tape. The cleaning composition may be located within a storage tank which holds from 1 to 15 mls, preferably 4 to 9 mls, and more preferable 3 to 7 mls of the composition. The tank may include a pipe for transporting the cleaning composition from within the tank. A portion of the pipe may extend from the body to release fluid through the tip, onto the tape. Alternatively, the tank may be shaped to avoid the need for a distinct pipe and simply has an outlet. The tank may also be stored within the lid rather than the body.

[0034] In an arrangement the delivery system involves an open feed from the reservoir to the tape. This can be done by capillary action or by gravity when the implement is inverted. A pipe or outlet from the reservoir could permit the transport of the composition to a transfer surface in contact with the tape. In the open feed arrangement a portion of the tape may always be wet by the cleaning composition. This tape portion may be available for immediate use if the transfer surface is located at or forms part of the contact tip. Alternatively this tape portion could be moved into position for use when the tape is advanced if the transfer surface is located between the contact tip and the storage spool.

[0035] The pipe or outlet of the tank may be capped by a porous plug. This plug can moderate the flow of composition from within the tank. The plug may be the contact tip or may be used to distribute the composition to the inside of the contact tip. This can be performed by using a hollow perforated contact tip with the plug fitting within the tip. If instead the side includes slots for the tape, then the tape may pass into a side of the tip, contact the foam plug and then leave the side of the tip before passing around the end of the tip.

[0036] The porous plug may be fitted within the outlet of the tank or within a pipe largely or wholly located within the tank. Or the end of the pipe or outlet may be fitted within a portion of the plug. This pipe extends to almost the end of the tank opposite the outlet. It can be used to move composition from the bottom of the tank to the contact surface via a non-gravity based delivery system. It can also moderate the amount of composition delivered to the contact tip when the device and tank therein is inverted to the amount of composition within the internal pipe.

[0037] Alternatively, in a different tank arrangement, the path of tape goes through seals in the tank and is thereby wet with the cleaning composition.

[0038] In an alternative to the open feed arrangement the delivery system can be an operable system whereby the operation of a button or other control means permits the flow of cleaning composition to the tape. This button or control
may be same as or different to the actuator for advancing the tape from the storage spool to the collection spool.

[0039] In an operable arrangement the reservoir of cleaning composition is stored within a tank having a pipe leading to a porous pad within the tip in contact with the tape. The pipe includes a fluid control valve or a means to control the flow such as a porous foam. The actuator is a button which when depressed opens the valve and permits the composition to flow to the porous pad and onto the tape. Alternatively, the actuator is a button which when depressed distorts the shape of the pipe thereby opening the valve. Alternatively the actuator could operate a simple pump, in which case it may not be necessary to have a transfer surface and the cleaning composition could be dripped or sprayed onto the tape.

[0040] In another operable arrangement the tank is formed from a deformable plastic and the composition within the tank is pushed out of the pipe through the porous plug within the tip to impregnate or wet the tape at the contact point by deforming the tank. The tank can be deformed by applying a compressive force to one or more sides of the tank. This force can be applied by depressing a button or buttons located on the housing or by depressing flexible regions in the housing whereby the force applied, to the buttons or regions is transferred to the sides of the tank. Alternatively the buttons or flexible regions may be omitted and a portion or portions of the tank may be directly accessible through the housing and can be depressed by the operator.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0041] The invention will now be described by reference to the figures in which:

[0042] FIG. 1 is an exploded perspective view of a cosmetic removal implement of the present invention.

[0043] FIG. 2 is a plan view of the cosmetic removal implement of FIG. 1, without one side of the housing.

[0044] FIG. 3 is a perspective view of the cosmetic removal implement of FIG. 2.

[0045] FIGS. 4 to 6 are plan views of the cosmetic removal, implement of FIG. 1, without the other side of the housing and the storage spool, each figure is shown with the actuator button in different positions.

[0046] FIGS. 7 to 9 are plan, side and perspective views of the assembled cosmetic removal implement of FIG. 1.

[0047] FIG. 10 is an exploded perspective view of an alternative cosmetic removal implement of the present invention.

[0048] FIG. 11 is a plan view of the cosmetic removal implement of FIG. 10, without one side of the housing.

**DETAILED DESCRIPTION OF THE INVENTION**

[0049] With reference to FIGS. 1 to 9, the present invention is a cosmetic removal implement. The implement includes a cover (3) which is detachable from the elongate body (5). The cover (3) may be formed by injection moulding with a polymer such as acrylonitrile butadiene styrene (ABS). The cover (3) is used to protect the body (5) stop the actuation of the buttons or levers and may be used to seal the opening of the hollow tip (7) located at an end of the body (5).

[0050] The body (5) functions as a housing and in addition to the tip (7), it comprises a collar (9) and two housing portions (13, 15). When assembled the tip (7) is held in place by the collar (9) fitted into the aperture (12) formed when the housing portions (13, 15) are joined together. The housing portions (13,15) and collar (9) are formed from rigid plastic material, namely ABS.

[0051] The collar (9) includes an aperture (10) into which the tip (7) fits. The tip does not wholly fill the aperture, instead when fitted together the collar engages portions of the tip and provides two slots located on opposite sides of the tip through which tape (65) can pass through the aperture (10) in the collar (9). The tip is profiled to facilitate the retention of the tape (65) about the tip.

[0052] The body contains a tank (21) for the storage of a cosmetic removal composition. The tank includes an outlet (22). A straw pipe (23) is located within the tank (21) and the outlet (22). The straw protrudes from the tank and extending within the tank to near the bottom of the tank. The straw pipe is open at both ends and does not include a valve to prevent the flow of a liquid, emulsion or gel composition from within the tank to the end of the pipe.

[0053] At the end of the pipe (23) is fitted a plug (25) of a porous polymer foam. The plug is friction fitted into an annular slot in the plug. The plug has an upper tapered portion which fits within the hollow tip (7). The plug (25) can be formed from an open cell foam such as polyurethane foam.

[0054] In an alternative form, not shown, the diameter of the plug is stepped, it has an upper tapered portion and a lower elongate shaft which is friction fitted within and plugs the open end of the pipe (23).

[0055] The cleaning composition flows from within the tank (21) out of the pipe (23) into the porous plug (25). The flow of the composition is affected by compressing the tank by the user depressing the buttons (26) which extend through the holes (27) in the housing. The buttons (26) are located on opposite arms of a resilient clamp (28). When pressed the buttons and clamp compress the sides of the tank (21) forcing the composition therein to travel out through the pipe (23). When released the resilience of the clamp material returns it and the buttons to their resting position. The tank may be formed from resilient material and also contribute to the return of the clamp and buttons to the resting position.

[0056] The composition then flows through the plug into the inner surface of the contact tip (7). The composition flows through the perforated sides of the tip to the outer surface of the tip and onto the tape contacted thereon. The tip is formed from polymer material such as polypropylene.

[0057] The body also contains two spools. A spool is the tape collection spool (35) which is mounted on a shaft (34) extending from the inner face of one housing portion (13). The other spool is a tape storage spool (31) mounted on shaft (33) extending from the inner face of the other housing portion (15). Each spool is capable of rotation about their respective shafts. The spools may be formed by injection moulding and from polypropylene.

[0058] The side of the spools (31, 35) closest to the inner housing each include two arcuate arms (41, 45), each respectively having a tooth (42, 46) extending towards the inner face of the nearby housing. Each housing portion includes a ring of raised teeth (47). The rings of teeth are respectively located co-axially with the shafts (33, 34) extending from the sides of the housing. The raised teeth of the housing (47) engage the tooth on the arms of the spools (42, 46). The teeth and tooth are directional and orientated to permit rotation of each of the spools in one direction about the shafts (33, 34) and resist
rotation in the other. When assembled shaft (33) connects with and extends in part into an aperture in shaft (34).  

[0059] The collection spool (35) also includes a gear (49) on the outer surface of the spool which is distal to the housing (13). This gear is co-axial with the spool (35). The teeth (50) of the gear engage with a hook (51) on a reciprocating arm (53). The arm (53) is operationally connected to the actuator, the sliding button (55), which is capable of sliding motion relative to the body. The arm (53) is operationally connected by the support arm (57) by the pivot joint comprising interlocking sockets (58) and pins (59). The arm (53) is held in a rest position by spring (61), which connects the arm to the body (5). In the rest position, shown in FIG. 4, the hook (51) engages a surface of the teeth (50).

[0060] As shown in FIG. 5, when the button (55) is slid towards the tip (7), the hook (51) also moves upward and thereby moves the teeth (50) of the gear, which rotates the gear (49) and the spool (35) in an anti-clockwise direction about the shaft (34).

[0061] As shown in FIG. 6, when the button (55) is released, the spring (61) returns the arm (53) towards the rest position, and in doing so returns the button to its original position. The orientation of the teeth (50) and the hook (51), permits the tooth to slide past the teeth of the spool. The motion of the spool in a clockwise direction is further prevented by the interaction between the tooth (46) and the housing (13).

[0062] The traverse of the button (55) and thus the reciprocating arm (53) is controlled by the contact between the top (59) and bottom (60) edges of the slot in the housing and the top (63) and bottom (62) edges of a portion of the button arm (57).

[0063] The spools (31, 35) are operationally connected together by the cleaning tape (65), which is moved in the direction shown in arrows (67). The collection spool (35) collects the tape drawn onto it, as it is rotated anti-clockwise. The tape (65) is dragged in a path defined in part by a side of the outer surface of the tank (21), through the aperture (10) in the collar (9), over the contact surface (8) of the tape contact portion of the tip (7), back through the aperture (10) in the collar (9), along the opposite outer surface of the tank (21) and from the storage spool (31) filled with tape.

[0064] In use a new portion of the tape (65) is positioned on the contact tip (7) by the operation of the sliding button (55). The user then depresses the buttons (26) which dispenses a dose of the cleaning composition on the new portion of the tape.

[0065] An alternative form of the implement is shown in FIGS. 10 and 11. It operates in substantially the same manner as the implement as shown in FIGS. 1 to 9.

[0066] In the alternative implement of FIGS. 10 and 11 the buttons (26) and clamp (28) of FIG. 1 have been omitted, the holes (27) in the housing positions (13, 15) are enlarged. The function of these components are now performed by having a flexible and resilient section (70) over the holes (27) in the otherwise rigid housing portions (13, 15). The flexible section (70) can be a rubber or polymer film. The sections may be fitted across the enlarged holes in the housing portion (13, 15) and fastened to the body by adhesive or other known methods for fastening one polymer material to another. The section may be a rubber over mould on the housing. The sections are sized so that a user can depress the resilient section (70) with their thumb and forefinger and apply pressure and deform the wall of the tank (21) located between the sections (70). This results in the flow of liquid, emulsion or gel composition from within tank (21). The resilient section can be formed from the flexible polymer such as a thermoplastic elastomer or a silicon polymer.

[0067] Each flexible section (70) has an integral column (71) extending from the inner surface which contacts the tank. In an alternative embodiment the opposed housing section (13) omits the resilient section and is formed from a rigid material. It otherwise operates like the above but the user depends the flexible section with their thumb only.

[0068] In a further embodiment (not shown) the resilient section can be entirely omitted and the side of the tank (21) sends against the rim of the aperture in the housing. The user would directly apply pressure to the wall of tank (21) through aperture in the rigid housing.

[0069] In FIGS. 10 and 11 the tape collection spool (35) and tape storage spool (31) have been repositioned relative to arrangements shown in FIG. 1, but otherwise the operation is substantially the same. Each spool is capable of rotation about the respective shafts in order that the tape travels from the storage spool (31), around the tank (21), over the tip (7), and returning around the tank (21) for collection on the collection spool (35). The movement of the tape (65) is controlled by rotating the collection spool (35) pulling the tape through the circuit from the storage spool (31). In this arrangement the collection spool includes a tooth (46) on the arcuate arm (45) of the spool which engages a ring of raised teeth (47) located co-axially with the shaft (34), extending from the inner surface of the housing (15). The storage spool (31) freely rotates within the device about shaft (33) as the tape is wound onto the collection spool.

[0070] Like the implement shown in FIG. 1, a new portion of tape (65) is re-positioned on the contact tip (7) by the operation of the button (55). The button is fixed to a sliding assembly (72) located within the housing. A hook (76) is attached to arm (74) attached to the sliding assembly (72) and the hook (76) operationally engages the teeth of the gear (49) fixed to the spool (35). A return spring (78) repositions the assembly (72) and button (55) after operation by the user.

[0071] Whilst the invention has been described with an emphasis on removing makeup about the eyes, it can be used for removing and tidying up cosmetics applied elsewhere. It can be suitable for removing non-transfer foundations, long lasting lipstick or other products such as nail polish when used with an appropriate liquid removal formulation.

[0072] While some embodiments of the present invention have been illustrated or described, other changes and modification can be made to the concept without necessarily departing from the invention.

[0073] Throughout this specification and the claims which follow, unless the context requires otherwise, the word “comprise” and variations such as “comprises” and “comprising”, will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

1. A cosmetic removal implement which comprises an elongate body portion having a contact tip at an end, the body having therein:
   a storage spool having spooled thereon a tape of cleaning material;
   a collection spool operationally connected to the storage spool by the tape; and
a reservoir containing a cosmetic removal composition, the
reservoir being in fluid connection with at least a portion
of the tape;
and wherein the tape is capable of motion along a tape path
from the storage spool over at least a portion of the contact tip
to the collection spool.
2. The cosmetic removal implement according to claim 1
wherein the implement includes an actuator which when
operated results in the rotation of the collection spool and
collection of the tape about that spool.
3. The cosmetic removal implement according to claim 2
wherein the actuator includes a slideable button which when
operated will result in the rotation of the collection spool.
4. The cosmetic removal implement according to claim 1
wherein the implement includes a delivery system for deliv-
ering the cosmetic removal composition from the reservoir to
a portion of the tape after said portion of tape has been moved
into position over the contact tip.
5. The cosmetic removal implement according to claim 1
wherein the reservoir of cosmetic removal composition is
located within a storage tank which holds from 1 to 5 mls of
the composition.
6. The cosmetic removal implement according to claim 5
wherein the tank includes a pipe for transporting the cosmetic
removal composition from within the tank to the contact tip.
7. The cosmetic removal implement according to claim 6
wherein the pipe is capped with a porous plug which is fitted
within the contact tip, and the contact tip includes outlets
through which the composition may flow from the plug,
through the contact tip and to an outer surface of the contact
tip.
8. The cosmetic removal implement according to claim 7
wherein the tank is formed from a deformable plastic and the
composition within the tank is pushed out of the tank and the
pipe through the porous plug within the tip to wet the tape at
the contact tip when the tank is compressed.
9. The cosmetic removal implement according to claim 8
wherein the tank can be deformed by depressing a button or
buttons located on the housing or by depressing flexible
regions in the housing and thereby compress the sides of the
tank.
10. The cosmetic removal implement according to claim 9
wherein the elongate body is adapted to be held by hand.
11. The cosmetic removal implement according to claim 1
wherein the tape is formed from absorbent material.
12. The cosmetic removal implement according to claim 11
wherein the tape is formed from cotton, polyester or a blend
of cotton and polyester.
13. The cosmetic removal implement according to claim 1
wherein the cosmetic removal composition is in the form of
liquid, emulsion or gel composition.
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